ACHIEVEMENTS OF SAFGRAD/ICRISAT/NARS COLLABORATIVE RESEARCH PROJECTS

Collaborative projects with NARS

Project	Lead Centers
1. Striga	Ethiopia
2. Ergot	Ethiopia and Rwanda
3. Crop Improvement	Ethiopia and Kenya
4. Stem borer	ICIPE and Uganda
5. Long Smut	Kenya (Muguga KARI)
6. Agro-ecological zones	ICRISAT Center

Achievements

1. Striga: The 1987 screening tests were carried out at lower Birr, Beles and Gumaide in Ethiopia. In lower Birr, varieties which had less than 25% striga counts compared to adjacent check varieties were ICSV 1007, ICSV 1006, 148 (SR-9), NJ 19892. Dobbs, Seredo and 81FSIP47 (Dinkmash 86). In Beles State farm, those which had counts less than 25% were SAR-24, Tetron, ICSV 1006, NJ 19892 and UCHV. Varieties which gave relative resistance in Gumaide were IS 8686, ICSV-1007, N-13, ICSV 1005, 76 TI 23, 81FSIP47, Dobbs and the local variety short Kulisha.
In Ethiopia, integrated control experiments are being conducted by Chris Parker and results are underway.

2. Ergot: ICRISAT pathologists and the regional coordinator transferred the screening technique for inoculation for ergot to Ethiopian and Rwandan scientists scientists in their own country to identify ergot resistant sorghum genotypes.

In Ethiopia over 300 entries were inoculated and and only 48 entries had good levels of resistance showing less than 10% ergot infected florets.

The same entries are now planted at Arsi Nigele and inoculated to reconfirm their resistances.

In Rwanda, inoculation was made on 65 local varieties at Rubona and Karama stations. IS 25535, IS 25549, IS 25550, IS 25553, IS 25559, IS 25569 and Pkinyaruka were identified as probably reistant genotypes. These genotypes are now planted in Rubona to reconfirm their resistances.

3. Crop Improvement:

In 1987 the regional coordinator organized a regional observation nursery for the lowland and highland areas for Eastern Africa countries. The entries included in the nursery came from the national program of Eastern Africa and ICRISAT.

Ethiopia and Kenya have dispatched a number of seed requests to national -program cooperators through the regional coordinator. Germplasm movement in the region is extremely important and the two tables in your handout showing the released and proposed to be released varieties of sorghum and millet is a result of the germplasm movement and evaluation and selection by NARS.

4. Stem borer:

134 sorghum varieties from Eastern Africa countries was given to ICIPE in 1986 by the regional coordinator to screen them for resistance under artificial infestation with stem borer Chilo partellus at ICIPE's Mbita point field station in Kenya.

The following entries showed good level of resistance as compared to the susceptible check. 8352/KAJ/N°, 506, 511, 653, Cross 60:6, ICSV Nos 83570, 83369 and 83620.

Uganda received from the regional coordinator the ICIPE resitant entries and ICRISAT resistant entries for evaluation in hot spot at Serere. No results are available. The Steering Coomittee decided to take away the lead center responsibility for stem borer from Uganda at this stage.

5. Long Smut:

Surveys for sorghum long smut caused by Tolyposporium ehrenbergee were made in four districts of eastern provinces of Kenya in 1987 and 1988. Long smut was found in Meru and Embu. The disease incidence in the farmers' fields varied from 3.7% in Meru to 3.3.% in Embu. At Marimanti experiment station the disease incidence varied from 28.6% in the most susceptible genotypes to 0% in the most resistant variety IS 8595 (local). A comparison of sporidia and chlamydospores as source of inoculum showed that sporidia was more efficient in causing infection. Sorghum plants inoculated with sporidia just before the heads emerge from boot was found to be the most effective method. No infection occurred on plants inoculated when heads had fully emerged. Out of several lines screened at Marimanti under natural condition, 18 genotypes were found to be resistant to long smut. These 18 genotypes were further screened in 1987 in the glasshouse at Muguga and ICSV 212 and QL3 showed good level of resistance. However, in 1986 local variety IS 8595 was found to be completely immune both in field and glasshouse conditions. Seeds are available at Muguga on request. The project will continue to identify more genotypes with high level resitance.

6. Agro-ecological zone grouping

Agroclimatic data was collected from each country in Eastern Africa by the regional coordinator and was supplied to Dr. Virmani in charge of agro-climatology department at ICRISAT Center for analysis. Initial grouping and characterization of different sets of environments in Eastern Africa was presented during the Somalia workshop. Additional and more recent data on agroclimatic features will be collected in order to produce more realistic classification of the different sets of environments. In the near future, results from regional advanced field trials for different ecological zones coupled with agroclimatic data will allow us to have a better interpretation of the data.

A follow-up of the collaborative projects by the RC

1/ Dessimination of the resistant genotypes through uniform yield trials in hot spots by NARS in the region.

2/ Transfer of relevant technology from local lead centers to recipient countries through regional short course and regional workshops.

1987

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